Syphilis

Syphilis, a genital ulcerative disease, facilitates the transmission of HIV and may be important in contributing to HIV transmission in those parts of the country where rates of both infections are high. Untreated early syphilis in pregnant women results in perinatal death in up to 40% of cases and, if acquired during the four years preceding pregnancy, may lead to infection of the fetus in over 70% of cases.[1]

The rate of primary and secondary (P&S) syphilis reported in the United States decreased during the 1990s and in 2000 was the lowest since reporting began in 1941 (Figure 22). The low rate of infectious syphilis and the concentration of the majority of syphilis cases in a small number of geographic areas in the United States led to the development of the CDC's National Plan to Eliminate Syphilis, which was announced by Surgeon General David Satcher in October 1999.[2] Collaboration with diverse organizations, public health professionals, the private medical community, and other partners working in STD and HIV is essential for the successful elimination of syphilis in the U.S.[3]

Although the rate of P&S syphilis in the United States declined by 89.7% from 1990 to 2000, the rate of P&S syphilis increased in 2001 and 2002; these increases were observed only in men.

Despite national progress toward syphilis elimination, particularly among African-Americans and among women, syphilis remains an important problem in the South and in some urban areas in other regions of the country. Outbreaks of syphilis occurring among men who have sex with men (MSM) have been reported which have been characterized by high rates of HIV co-infection and high-risk sexual behavior.[4-9]

- In 2002, P&S syphilis cases reported to CDC increased to 6,862 from 6,103 in 2001, an increase of 12.4%. The reported rate of P&S syphilis in the United States in 2002 (2.4 cases per 100,000 population) was 9.1% higher than the reported rate in 2001 (2.2 cases per 100,000 population), and it is significantly greater than the Healthy People 2010 (HP2010) objective of 0.2 case per 100,000 population (Figure 23, Table 1).[10]
- From 2001 to 2002, the number of cases of early latent syphilis reported to CDC decreased 3.1% (from 8,701 to 8,429) (Table 36) while the number of cases of late and late latent syphilis increased 1.1% (from 16,976 to 17,168) (Table 38). The total number of cases of syphilis (P&S, early latent, late and late latent, and congenital syphilis) reported to CDC increased 1.9% (from 32,272 to 32,871) from 2001 to 2002 (Table 23).
- Between 2001 and 2002, the rate of P&S syphilis increased 26.7% among men (from 3.0 cases to 3.8 cases per 100,000 men) (Figure 27, Table 29). During this period, the rate declined 21.4% among women (from 1.4 to 1.1 cases per 100,000 women) (Figure 27, Table 28).

- The male-to-female rate ratio for P&S syphilis has risen steadily since 1996 when it was 1.1 (Figure 29). The male-to-female rate ratio in 2001 was 2.1 and in 2002, the rate ratio was 3.5 suggesting an increase in syphilis among men who have sex with men.
- An increase in the male-to-female rate ratio for P&S syphilis occurred among whites, African-Americans, and Hispanics from 2001 to 2002. The male-to-female rate ratio for P&S syphilis increased from 6.0 to 11.0 among whites, from 1.7 to 2.1 among African-Americans, and from 3.7 to 5.0 among Hispanics; the male-to-female rate ratio declined from 10.0 to 8.0 among Asian/Pacific Islanders and the rate ratio remained at 1.2 among American Indian/Alaska Natives (Table 35B).
- An increase in the male-to-female rate ratio for P&S syphilis occurred in 25 (71.9%) of 32 states, the District of Columbia, and 1 outlying area that reported 25 or more cases in 2002 (Tables 28, 29, 32, and 33).
- African-Americans accounted for 49.8% of cases of P&S syphilis in 2002 and 62.5% in 2001. During 2001 to 2002, the rate of P&S syphilis declined 10.9% among African-Americans, reflecting a 2.6% decrease in the number of cases among men (from 2,286 to 2,226) but a 21.7% decrease among women (from 1,527 to 1,195). The rate among whites increased 71.4%; cases among men increased 85.2% (from 1,138 to 2,108), and cases among women decreased 12.8% (from 249 to 217). The rate among Hispanics increased 28.6%; cases among men increased 35.6% (from 607 to 823), and cases among women increased very slightly from 146 to 147. The rate among Asians/Pacific Islanders increased 80.0%; cases increased among men (from 51 to 83) and women (from 4 to 11). The rate among American Indian/Alaska Natives decreased 42.9%; cases decreased among men (from 49 to 27) and among women (from 41 to 24). (Figure 28, Tables 35A and 35B).
- In 2002, the rate of P&S syphilis among African-Americans (9.8 cases per 100,000 population) was eight times greater than the rate among whites (1.2 cases per 100,000 population). This differential was substantially less than that in 2001, when the rate of P&S syphilis among African-Americans was 16 times greater than the rate among whites. In 1998, the rate among African-Americans was 34 times greater than that among whites (Table 35B). The decline in the difference in rates between African-Americans and whites is due to significant decreases in rates among African-Americans in conjunction with increases in rates among whites.
- The incidence of P&S syphilis was highest among women aged 20-24 years (3.3 cases per 100,000 population) and among men aged 35-39 (9.9 cases per 100,000 population) in 2002 (Figure 30, Table 34).
- The South accounted for 45.8% of P&S syphilis in 2002 down from 56.2% in 2001. From 2001 to 2002, the rate decreased 8.8% in the South (from 3.4 to 3.1 cases per 100,000 population) but increased 16.7% in the Midwest (from 1.8 to 2.1), 54.6% in the Northeast (from 1.1 to 1.7), and 64.3% in the West (from 1.4 to 2.3). The 2002 rates in all regions were greater than the HP2010 objective of 0.2 case per 100,000 population (Figure 26, Table 27).
- In 2002, P&S syphilis rates in seven states were less than or equal to the HP2010 national objective of 0.2 case per 100,000 population (Figure 24, Table 25). Eight

states and one outlying area reported five or fewer cases of P&S syphilis in 2002 (Tables 25 and 27).

- In 2002, 2,534 (80.7%) of 3,139 counties in the United States reported no cases of P&S syphilis compared with 2,516 (80.2%) counties reporting no cases in 2001. For 605 counties reporting at least 1 case of P&S syphilis in 2002, 10 (1.7%) counties had rates at or below the HP2010 objective of 0.2 case per 100,000 population. Rates of P&S syphilis were above the HP2010 objective for 595 counties in 2002 (Figure 25). These 595 counties (19.0% of the total number of counties in the U.S.) accounted for 99.9% (6,853) of the 6,862 P&S syphilis cases reported in 2002.
- In 2002, half of the total number of P&S syphilis cases were reported from 16 counties and the city of Baltimore, MD (Table 26).
- The overall rate of P&S syphilis in 2002 for selected large U.S. cities with populations of at least 200,000 persons (5.8 cases per 100,000 population) was higher than the rate in 2001 (4.8 cases per 100,000 population). Rates exceeded the HP2010 objective of 0.2 case per 100,000 population in all 63 cities in 2002 (Tables 30 and 31).
- Between 2001 and 2002, the overall rate of congenital syphilis decreased by 16.4% in the U.S., from 12.2 to 10.2 cases per 100,000 live births (Figure 32, Table 40). There were 412 cases reported in 2002, down from 492 in 2001. Among the 17 states and 1 outlying area with 5 or more reported cases of congenital syphilis in 2002, 13 of these areas had rates that decreased from 2001 to 2002. Eight of these states had rate decreases of 30% or more between 2001 and 2002 (Table 42).
- The continuing decline in the rate of congenital syphilis (Figure 32) likely reflects the substantial reduction in the rate of P&S syphilis among women that has occurred during the last decade (Figure 31).[11,12] During 1992-2002, the average yearly percentage decrease in the congenital syphilis rate was 19.2% (Table 40). The average yearly percentage decrease in the rate of P&S syphilis reported among women during 1992-2002 was 21.2%.
- In 2002, 27 states, the District of Columbia, and 1 outlying area had rates of congenital syphilis that exceeded the HP2010 objective of 1.0 case per 100,000 live births (Tables 41 and 43).
- Twenty-nine (46.0%) of the 63 selected cities in the U.S. with populations of 200,000 persons or more had congenital syphilis rates greater than the HP2010 objective of 1.0 case per 100,000 live births in 2002 (Table 43). All of these cities had rates that were more than four times the HP2010 objective.
- Additional information on syphilis and congenital syphilis can be found in the **Special Focus Profiles**.

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[1] Ingraham NR. The value of penicillin alone in the prevention and treatment of congenital syphilis. *Acta Derm Venereol* 31 (suppl 24):60,1951.

[2] Division of STD Prevention. *The National Plan to Eliminate Syphilis from the United States*. National Center for HIV, STD, and TB Prevention, Centers for Disease Control and Prevention, 1999.

[3] Centers for Disease Control and Prevention. Primary and secondary syphilis–United States, 1999. *MMWR* 2000;50:113-117.

[4] Centers for Disease Control and Prevention. Resurgent bacterial sexually transmitted disease among men who have sex with men–King County, Washington, 1997-1999. *MMWR* 1999;48:773-777.

[5] Centers for Disease Control and Prevention. Outbreak of syphilis among men who have sex with men–Southern California, 2000. *MMWR* 2001;50(7):117-20.

[6] Bronzan R, Echavarria L, Hermida J, Trepka M, Burns T, Fox, K. Syphilis among men who have sex with men (MSM) in Miami–Dade County, Florida [Abstract no. P135]. In: Program and abstracts of the 2002 National STD Prevention Conference, San Diego, California, March 4-7, 2002.

[7] Centers for Disease Control and Prevention. Primary and secondary syphilis among men who have sex with men–New York City, 2001. *MMWR* 2002;51:853-6.

[8] Chen SY, Gibson S, Katz MH, Klausner JD, Dilley JW, Schwarcz SK, Kellogg TA, McFarland W. Continuing increases in sexual risk behavior and sexually transmitted diseases among men who have sex with men: San Francisco, California, 1999-2001 [Letter]. *Am J Public Health* 2002;92:1387-8.

[9] Ciesielski CA, Boghani S. HIV infection among men with infectious syphilis in Chicago, 1998-2000 [Abstract no. 12]. In: Program and abstracts of the 9th Conference on Retroviruses and Opportunistic Infections, Seattle, Washington, February 24-28, 2002.

[10] U.S. Department of Health and Human Services. *Healthy People 2010*. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, DC: U.S. Government Printing Office, November 2000.

[11] Centers for Disease Control and Prevention. Congenital syphilis–United States, 2000. *MMWR* 2001;50(27):573-7.

[12] Centers for Disease Control and Prevention. Primary and secondary syphilis–United States, 2000 – 2001. *MMWR* 2002;51(43):971-3.

Figure 22. Syphilis — Reported cases by stage of infection: United States, 1941–2002

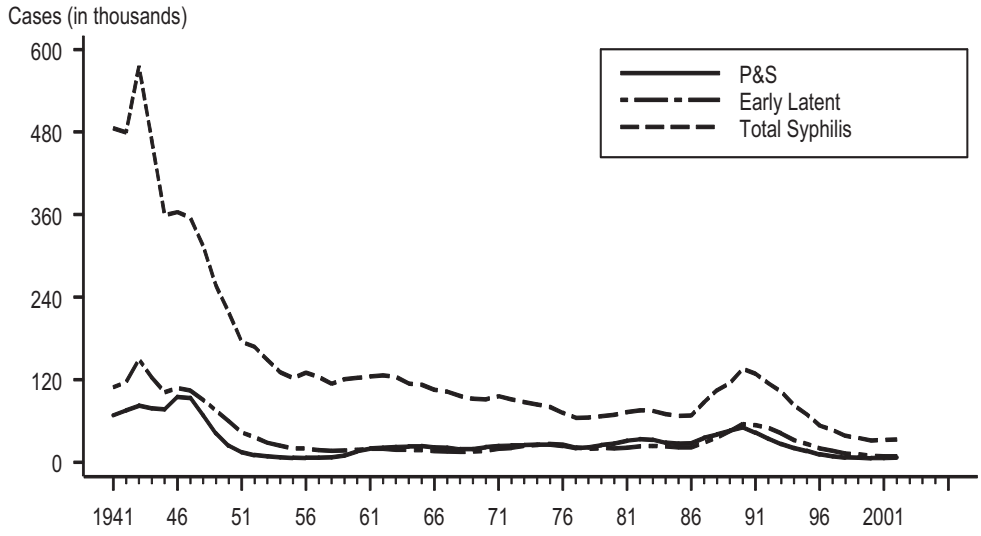
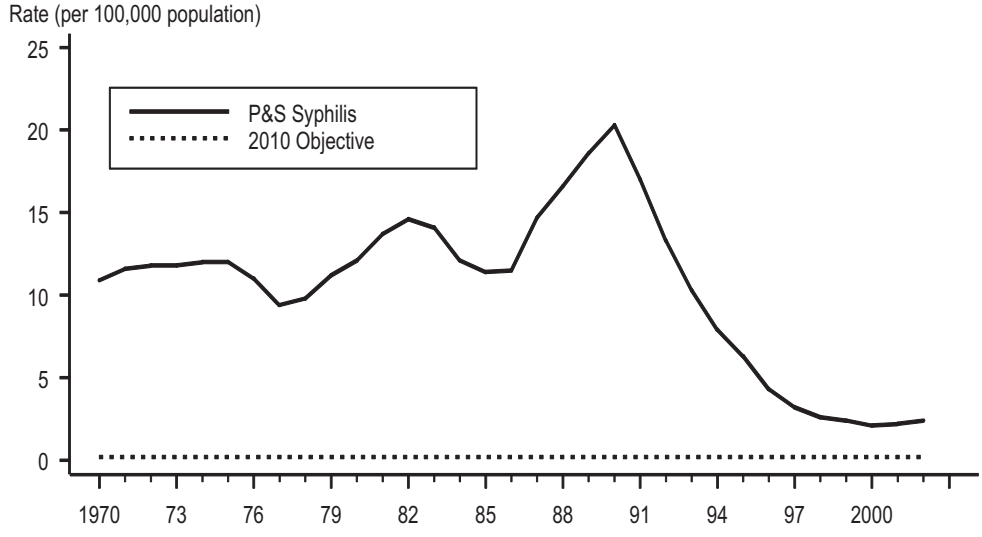
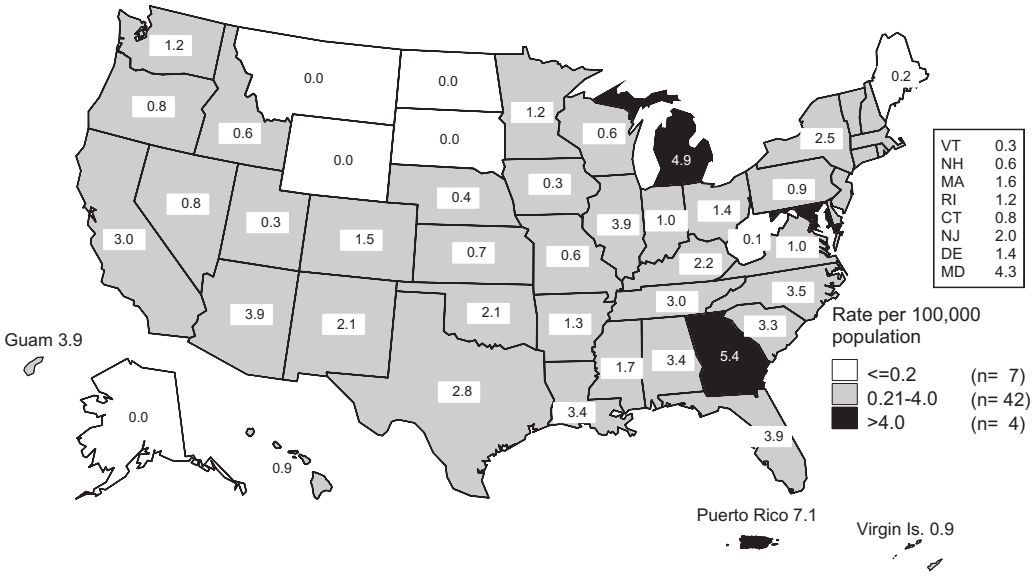


Figure 23. Primary and secondary syphilis — Rates: United States, 1970–2002 and the Healthy People 2010 objective



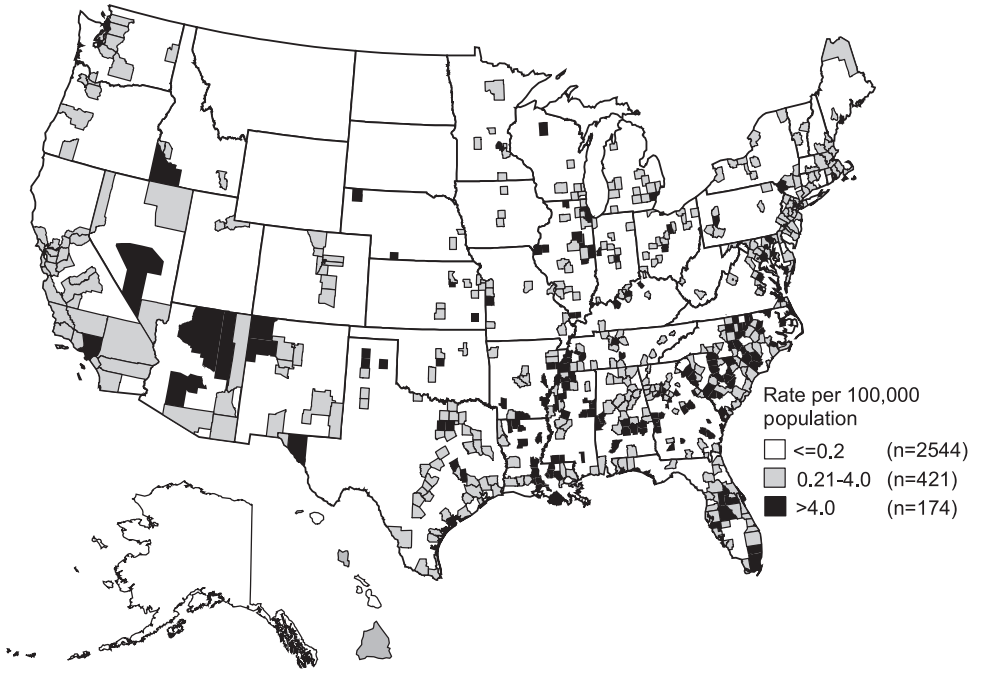
Note: The Healthy People 2010 objective for primary and secondary syphilis is 0.2 case per 100,000 population.

Figure 24. Primary and secondary syphilis — Rates by state: United States and outlying areas, 2002



Note: The total rate of primary and secondary syphilis for the United States and outlying areas (Guam, Puerto Rico and Virgin Islands) was 2.5 per 100,000 population. The Healthy People 2010 objective is 0.2 case per 100,000 population.

Figure 25. Primary and secondary syphilis — Rates by county: United States, 2002



Note: The Healthy People 2010 objective for P&S syphilis is 0.2 case per 100,000 population.

Figure 26. Primary and secondary syphilis — Rates by region: United States, 1981–2002 and the Healthy People 2010 objective

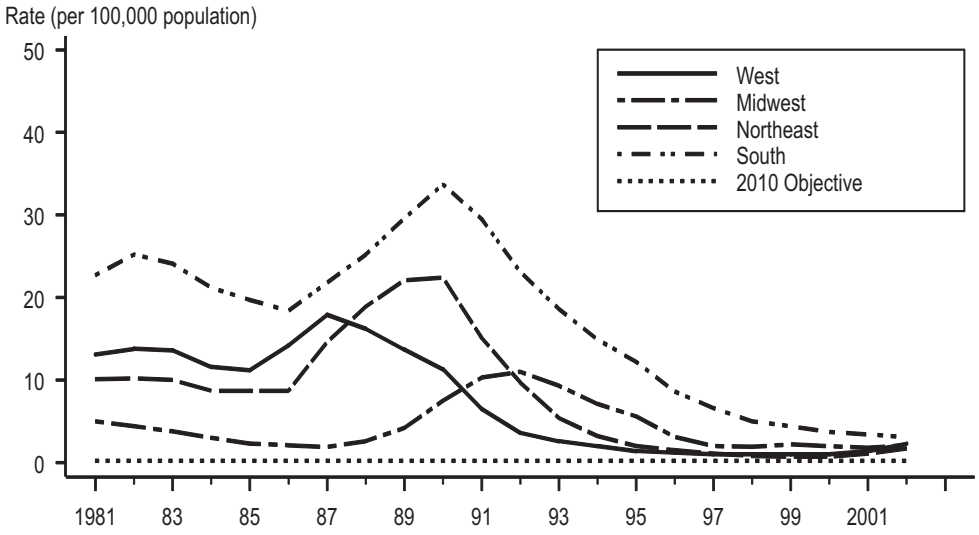


Figure 27. Primary and secondary syphilis — Rates by sex: United States, 1981–2002 and the Healthy People 2010 objective

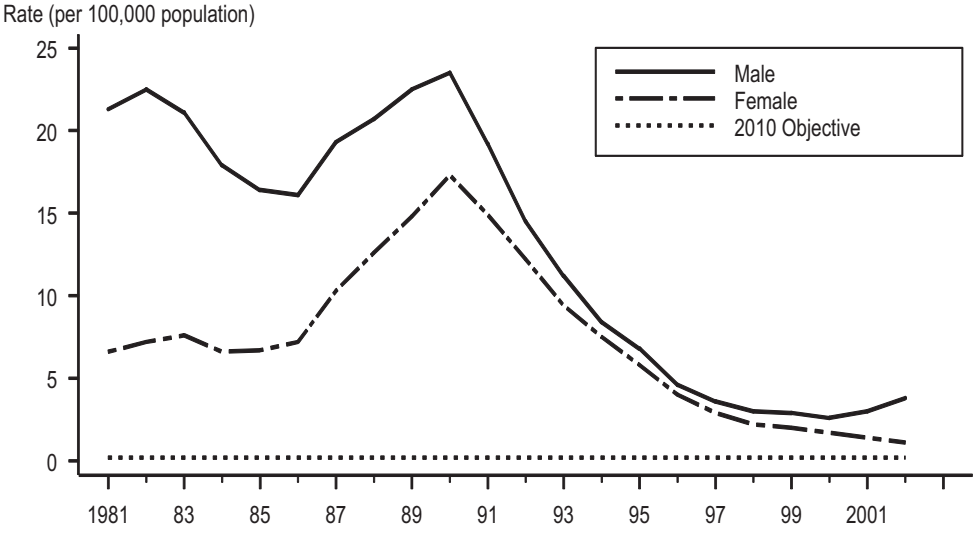


Figure 28. Primary and secondary syphilis — Rates by race and ethnicity: United States, 1981–2002 and the Healthy People 2010 objective

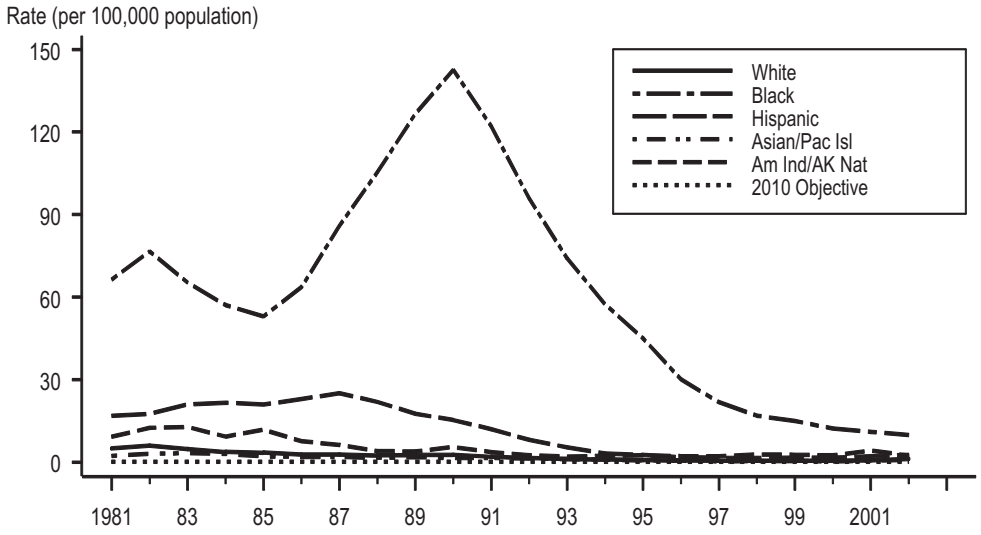


Figure 29. Primary and secondary syphilis — Male to female rate ratios: United States, 1981–2002

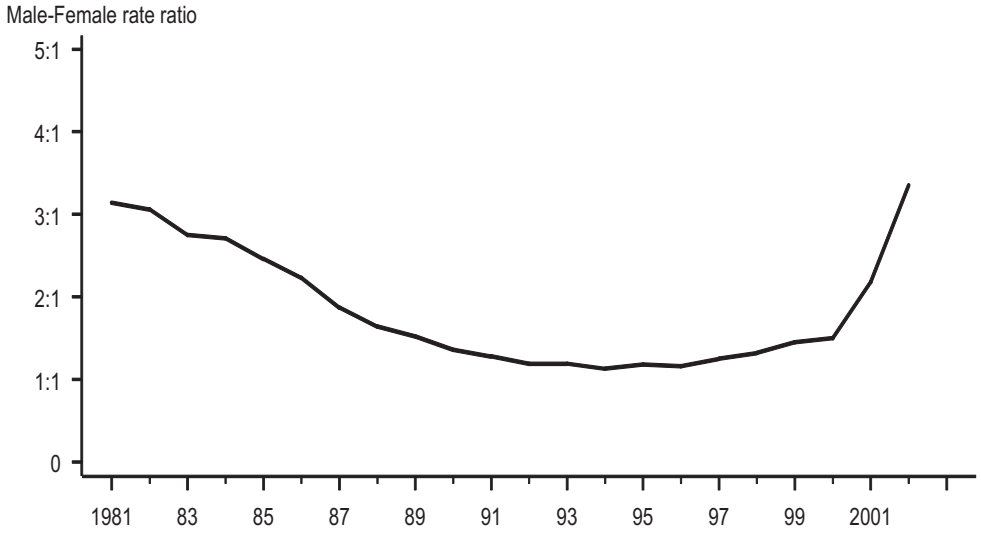
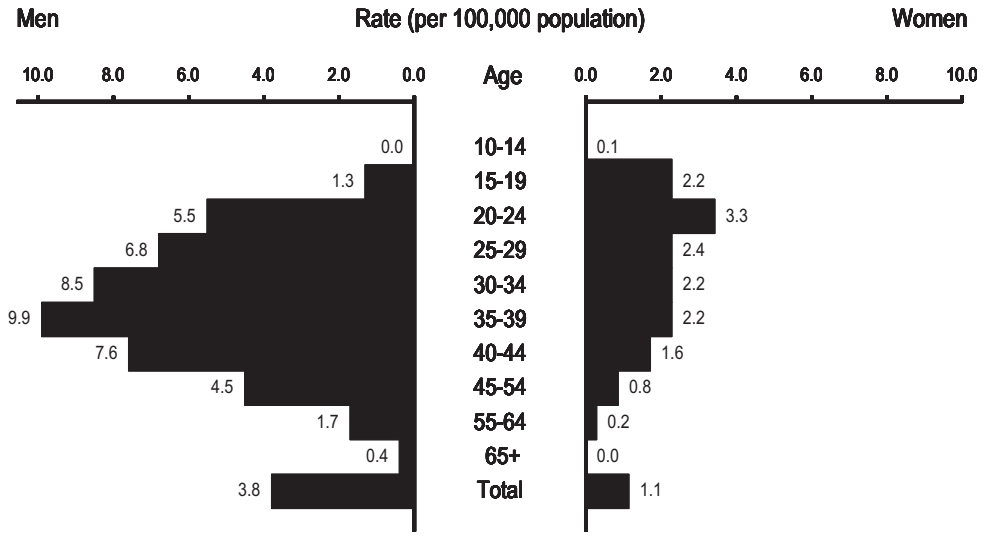
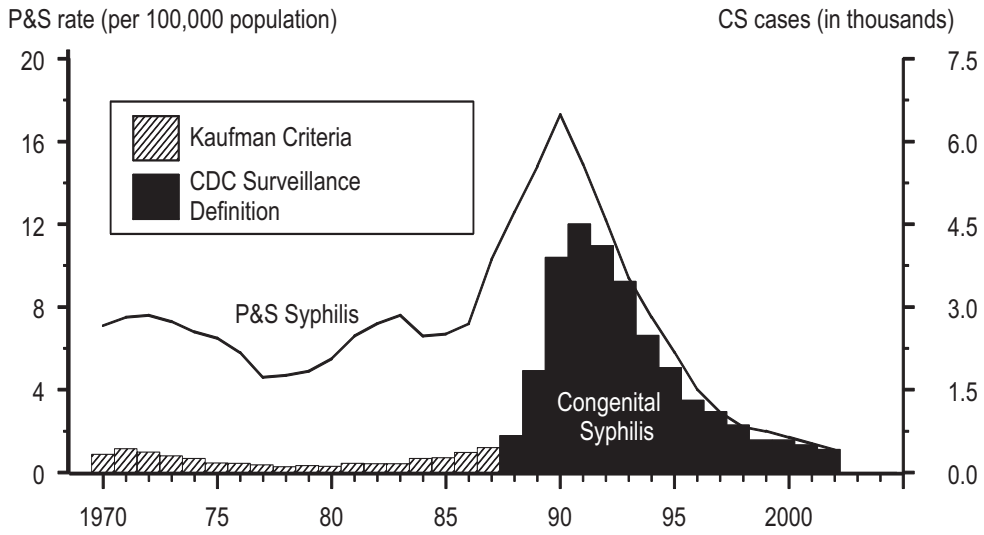


Figure 30. Primary and secondary syphilis — Age- and sex-specific rates: United States, 2002



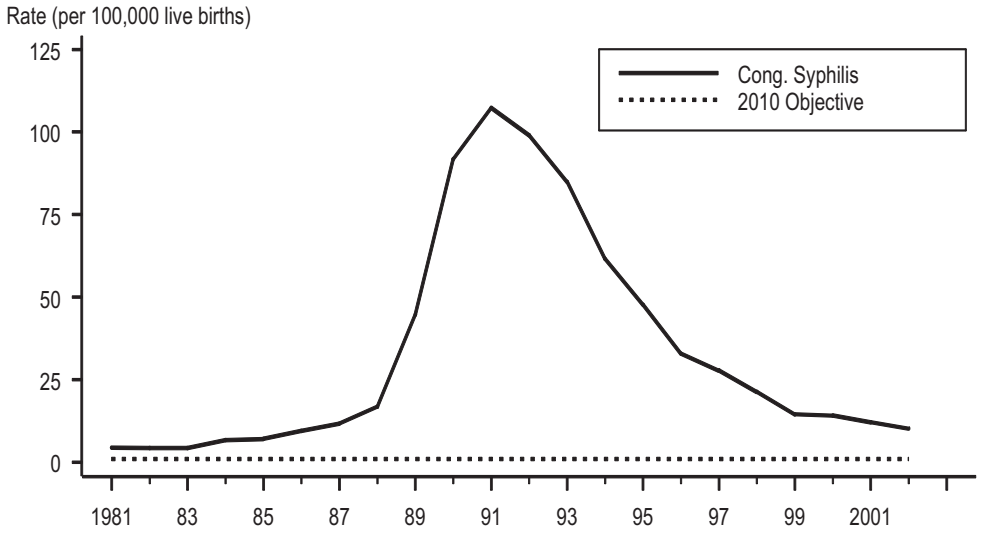
Note: See Table 34.

Figure 31. Congenital syphilis — Reported cases for infants <1 year of age and rates of primary and secondary syphilis among women: United States, 1970–2002



Note: The surveillance case definition for congenital syphilis changed in 1988. See Appendix (Reporting of Congenital Syphilis Cases). Case counts for congenital syphilis shown in this graph correspond to those listed in Table 40.

Figure 32. Congenital syphilis — Rates for infants <1 year of age: United States, 1981–2002 and the Healthy People 2010 objective



Note: The Healthy People 2010 objective for congenital syphilis is 1.0 case per 100,000 live births. The surveillance case definition for congenital syphilis changed in 1988. See Appendix (Reporting of Congenital Syphilis Cases).